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Octavius has passed his final and supreme conflict, which the poet seems to make the most difficult as well as the most glorious of all the conflicts in the drama. This victory is greater than the victory over Antony, who had already been subdued by Cleopatra; now the mighty conqueress is herself conquered. The man who can resist the fascination of the Orient is the true Roman, is the ruler capable of maintaining and perpetuating the Roman principle and the Roman empire. Alexander even was absorbed by the East, and his realm passed away like a cloud. Octavius can spend a tear of pity over his illustrious foes, but his emotions never clouded his judgment or hindered the clear, definite pursuit of his political end. When the play terminates, we feel that a great epoch with its external and internal throes, with its weak men and mighty heroes, has passed away. All the struggles are overcome not by temporary compromises but by the subordination of the lower to the higher principle; the world finds unity, peace, and law, in the empire. This epoch is therefore the true date of Imperialism.

THE IDEA OF MATTER AS THE GROUND OF ALL PHENOMENA OF THE UNIVERSE.

(An attempt to solve Tyndall's Problem).

BY K. TH. BAYRHOFFER.

[Translated from the author's manuscript by MRS. ELLA S. MORGAN].

Tyndall, in his well-known Belfast address, as well as in several passages in his "Fragments of Science," declares that in matter he discerns the promise and potency of life and spirit, but that the idea of matter, in order to justify this, must be more profound and comprehensive than it has hitherto been apprehended to be. He says that until now the idea of matter as the basis of nature, had been considered only from its external and mechanical sides. But then Tyndall confesses that he cannot give the truer idea be-

cause the connection between spiritual life and mechanics or organism, the movements of the Universe, is still obscure. If we now ask "What is the conception of matter in the general consciousness and in natural science?" we receive the universal answer, "Matter is the substance extending through and filling parts of space, considered as independent existence in and for itself, whose universal predicates are this extension and divisibility, resistance or the impenetrability of all its parts, and perhaps weight, the gravitation of all its parts towards each other." Matter is sometimes defined as that which is impenetrable and movable in space. If we now take these phenomena as the manifestation of internal essence (*innerer gruende*) then we may consider matter as filled with forces or principles of inter-action, especially the power of attraction and repulsion. From the standpoint of such a theory it is therefore presupposed that the particles of matter themselves, being separate members and bodies, can never reciprocally penetrate each other, and that all apparent penetrability is only a nearer approach of the particles and a penetration of matter into the hitherto empty spaces lying between. It is also now universally presupposed that the so-called forces are wholly bound up with matter, are in fact only its qualities inseparable from it. In the same way it has often been supposed that matter was *originally* in motion, which (motion) is consequently an absolute fact just as incapable of derivation as matter itself. And now since in order to explain phenomena, scientific investigation of nature conceives visible matter as itself made up of invisible, minute, material particles or bodies (the so-called atoms or molecules) it is claimed that from the forces and motions of these atoms and molecules we are to comprehend all nature as a mechanism; and logically consistent scientists declare that even the spiritual life of man must also originate in this mechanism, because the nervous system, more especially the brain, is evidently the material ground out of which spirit is born, and of which we know nothing without this base—for immaterial spirits are only fantastic images or chimeras. Matter being, according to this, the root of all phenomena of the universe, materialism is esteemed as the only true system of knowledge (based upon one principle) in contrast both to an original dualism of matter and spirit, and to a spiritualistic unitary basis, as is claimed by Christian theology, or in another way by the philosophy of Berkeley.

We cannot deny that empirical, reflective science has always held fast to the materialistic basis of all phenomena of the universe, and taught that an immaterial spirit is out of the question, i. e., any spirit not bound to matter or not conditioned by matter—unless we wish to put poetical fancy in the place of science.

If therefore to the real empirical conception matter is the only basis of the universe, out of which arise all phenomena—revelations of nature and spirit—to the reflective mind still remains the question, “What is the essence or idea of matter itself?” For speculative analysis cannot rest until it has become an absolute analysis, until it has reached the point where no further pre-supposition is possible, until it has reached the ultimate hypothesis. And as empirical, inductive investigation stops either with the mere conception of *one* infinitely extended and divisible matter, or with the atom as the ultimate element of matter, having extension but still being indivisible: the first theory asserts a simple logical contradiction; the second asserts the construction of matter *en masse* out of minute particles of matter, which themselves involve the contradiction of being both indivisible and extended. The problem of philosophy or speculative thinking is precisely to find an idea of matter that does not involve contradiction, the final solution of this fantastic knot of ideas. The solution of the problem of matter is the solution of all problems.

It may indeed be said—from the standpoint of modern empirical science—that the real essence of things, matter, is still hidden, is an insoluble problem, is “unknowable absolute force,” (Herbert Spencer), or is the unknown and in itself unknowable (Kant, Herbart). It might be said that it is sufficient for us to know that all phenomena, of nature as of mind, inhere in the eternal, material substratum. And on the other hand we might say with Herbert Spencer that since all knowledge consists in a relation of the subject to the object, the absolute being, the unity, or at all events the unifying root, of both sides, it would therefore be one-sided to set up a mere materialism, and true philosophy may as rightly be called spiritualism if we give the chief weight to the subjective side of knowledge. For all conceptions of matter being but mental images of it, spiritual phenomena and not the thing itself, it is after all more credible that matter is but the expression of spirit than vice versa. Still the absolute being is in truth only the unknown unity of both sides, neither materialism nor spiritualism is the true expression of

philosophy. In the same way, but in another form, Spencer advocates Shelling's "absolute indifference" and Hegel's "absolute idea."

But as regards the unknowableness of being, we ask on what grounds is the mind of man *justified* in denying *knowledge of being*? Being, matter with its metamorphoses and phenomena lies before us. Phenomena being its (matter's) revelations, posited by it, necessarily contain the essence, the kernel, and are utterly inseparable from it. Hence while the thinking mind analyzes the phenomenon it must posit its being as the plainly existing unity which lies at the foundation. And that would be conceded by all, if in this attempt at absolute comprehension thought did not involve itself in logical contradictions which seem insurmountable (cf. Kant's Antinomies and the contradictions shown by Hegel and Herbart in all notions of experience.) But thinking is not a fixed something, it is a process, a development in the thinking subject. Thought itself generates all the inconsistencies, and drives on to their solution—on account of its own certainty of its real existence—unhindered by contradictions, it cannot rest until it has developed a system of thought which is entirely consistent with itself, that is, one which has solved the contradictions, the *inner illusion*, the confusion of the subject. All proceeds from the belief that the subject has objectivity within as well as without itself; that every real, concrete, sensible being is the union of subjectivity and objectivity (hence the dualism of subject and object is disposed of, once and forever), and this belief is confirmed by all experimental science. In regard to the other theory of Herbert Spencer, viz: that the unitary system can be called spiritualism as well as materialism, we are not to forget that spirit is *essentially* mediated as through nature, the material system; while matter is conceived as the substance, the mother of things and phenomena, and so under all circumstances life and spirit exhibit themselves as the phenomenology of matter. But of course we recognize that in a certain sense matter itself is phenomenology, is the eternal chain of egos, of real souls, and that even the notion of matter is inconceivable without including the potentiality of spirit, and conversely, the idea of spirit presupposes matter. Hence we may call the true system the unitary system of the material-spiritual, the external-internal, and also the unitary system of living substance, which as we shall see is the eternal chain of being; absq-

lute synthesis. Speculative analysis will advance this to certainty. We now pass to this analysis.

The real phenomenal world, which we perceive through the senses (not excepting the animal organism as the only bearer of spiritual life, in the strictest sense)—this world lies before us extended in space, consisting of parts and members near, but apart and separable from each other. This appearance in space, conceived as the positive, the self-existing, essence, or self, is called matter, which, in order to make form and content identical, is defined as extended being. Conceive the phenomenon to have the *form* of space, or of continuous external being without the essence, the substance, then we have the mental image of pure or empty space. It is well known that the old Atomic philosophy conceived the universe as made up of the atom and the void, being and nothing. The actual which lies before us as a visible, material, is the entire heavenly and earthly world, which latter of course, according to the true scientific theory of the universe, is only a member of the cosmic whole, of the starry host with its illimitable spaces and varied forms.

Now while empirical science continues by the induction of experience, to verify the forms and laws of this material universe by a relative analysis referring to relatively simple elements (viz. atoms and forces) speculative thinking carries the inquiry up to the notion, or to the perfect analysis of material existence, which is after all only an empirical conception. Thought tries to establish the absolute analysis of this being, while recognizing that matter (defined as an extended, resisting, somewhat capable of rest and motion) in order to be comprehended, involves pre-suppositions which for the sake of scientific knowledge must be posited and comprehended in thought, and in so far as matter is the sole basis of all phenomena (as the unitary system of materialism supposes) must be recognized as the principles of all phenomena of the universe, the physical as well as spiritual, or else the whole theory would fall asunder as a one-sided and therefore false hypothesis.

From the standpoint of Tyndall, Huxley, and other great scientific investigators, we are confronted with the remarkable phenomenon, that matter is presupposed as the absolute essence, but that nevertheless its spiritual side is put down as from its very nature incomprehensible, or at least uncomprehended, whence Tyndall (as we have already seen) rightly demands a truer con-

ception of the idea of matter than men of science have hitherto had.

If matter is conceived, as it is universally, that each of its parts or components is essentially extended and divisible, then according to this idea, matter would be composite, *ad infinitum*. Of course it makes no difference whether we speak of ideal or actual divisibility, since infinite divisibility involves a state of being infinitely divided, i. e., the so-called separation only represents the original separation as made visible. If we deny this, we are met by Spinoza's illogical notion of the divisibility of the form without the divisibility of the essence or substance, as if form could stand in opposition to essence, or as if there could be form without essence. Spinoza's absolute, indivisible, extended substance would not be able to exist as extended, because all of its parts and components are from the beginning absorbed and dissolved in the unity of the substance. The infinite, extended, but indivisible substance of Spinoza contains an internal logical contradiction, just as the simple extended substance, divisible but not in and for itself discrete, is a similar contradiction.

It is therefore agreed that if matter is extended and divisible then it must be composite in itself or limited, and it therefore passes continuously through these limits, and this internal limitation must of course be infinite, i. e., must continue to the simple ultimate element, for the analysis of thought can be satisfied with nothing short of that. Hence matter must be resolvable into pure simple elements, and would without these become a chimera of so-called absolute empty space, of a merely negative identity, devoid of essence, and of a pure logical contradiction. This is the truth in the Atomistic Philosophy, only that in speculative analysis the atom necessarily becomes a monad. Hence Leibnitz was justified in setting up the system of monads against Spinoza's one extended and thinking substance, and had therein seized the actually true principle of the unity of nature and spirit, extension and subjectivity. Herbart also recognized the principle of the universe in the community of souls. And Hegel without more ado, posits matter as the continuity of the discrete, the unity of independent somewhats which have sunk together into the unity of space and time, i. e., motion, in which differences have vanished, unity of repulsion and attraction of the for itself existent; although he has not adequately

developed this true principle, and in his inverted method derives the concrete from the abstract, instead of first comprehending the perfectly concrete principle by a speculative analysis of the content of experience, and then developing science from this concrete principle. Had Hegel but continued on this true road upon which he entered with his *Phenomenology of Spirit*, from this phenomenology of the real spirit he would have developed the universal metaphysical principle of the universe, and from the latter would have followed the real genesis of the same as a complete system of nature, in which self-conscious spirit is nothing more than the final blossom of nature. Philosophy from its very nature must (since scientific knowledge is only the final reflection of being) begin with a regressive movement, in which experience elevates itself to speculative thought, and in which are shown the unity and commensurability of subject and object, ego and non-ego, science and nature. Then philosophy must pass over to a progressive movement, to a construction of the universe from one principle, upon whose summit the mind returns to itself. The real principle, the real ground of nature is not space and time and motion, abstractions which as such are empty nothings; and this Hegel well knew, but he offered this discipline to the mind in order to lead it, through these nothings, to the real. The true principle of nature is the eternal unity or synthesis of real monads, as we shall see, and not until this principle is postulated can we understand space and time and motion, matter and its forces, life and mind, which without this presupposition all vanish into nothingness. We saw that the speculative analysis of matter leads to the immaterial and non-extended, as the elements of which matter is composed. Matter is only a combination of simple beings, the chain of souls or egos, as it were. Infinite divisibility is only the ever unsuccessful attempt on the part of sense-perception to explain composite being as derivative from simple being. The conception of matter as the conception of being is only the unsolved and confused notion of a series of monads. The infinite sought by the sensuous conception is reached in thought, and with it is reached the eternally abiding existence in the changes of phenomena in the mutable synthesis of the monads. The universe is the ceaseless process of the system of monads. All matters, forms, laws, forces, conscious and unconscious powers are the offspring of this system. We have reached the point in which,

atoms and molecules of the scientists (into which the abstract chimera of continuous extended entity has been resolved) find their explanation in the absolute analysis of reason, in the interaction of the centres of life.

Our problem is now (a) to show that the idea of the simple essence, though not really perceivable by the senses, nor capable of being pictured in the mind, still contains no contradiction, and carries the element of visibility in it. (b) That the idea of an original aggregate, and of interaction of simple entities, can be conceived without contradiction. (c). That the universe with all its material-spiritual phenomena, forms, laws, forces, is to be comprehended or explained through this interaction. (1) Simple being is the opposite of composite being, and all composite beings can be reduced finally to simple beings. We will not here dispute as to whether we may call a composite being "a being." We probably may so call it if the compositeness is understood as an absolute composition—taking place through mutual interaction—being therefore an essential one, for here all beings reciprocally assume their predicates of phenomena—the external and internal phenomena are interlinked with each other from within out, and so form a real whole. In the same way a row of marbles, books, stones, etc., would not be called one being; but we should speak of one stone, one plant, one animal, because each exists only as a chain of parts and members, each through the other, not as a mere external juxtaposition; and we shall see that the universe is an eternal and internal chain of simple elements, an original manifold, an original form of unity, and so far as the One infinite (i. e., a being limited only through itself) can be defined, is self-articulated, i. e., is made up of simple elementary causal factors. Instead of composition the word *interpositing* (*fuer-einander-setzung*) could be used if we wished to keep in mind that this interpositing is imagined only as a reflex of beings in antithetic relation to each other, in order to preserve their mutual independence of each other. Interaction is an appropriate and correct expression.

Leibnitz places at the beginning of his *Monadology* the proposition, "There are composite beings, hence there must be simple beings." Much as this fundamental idea has been criticised (e. g., lately by Stallo) it still remains unrefuted, and the negative of this proposition would be a simple logical contradiction, unless those critics intend by it to posit an extended, divisible being,

without composition, without articulation. But that again is a pure logical contradiction. Therefore the so-called continuity of substance can in truth be only a middle term between unity and separateness of substances, an internal-external chain or interaction of simple elements, from which eternal chain the universe proceeds.

Simple substance is that indivisible (because not composite) being which is identical with itself. It cannot therefore be conceived as extended, disparate, that is as consisting of parts in juxtaposition, and so far cannot be really perceived by the senses because sense-perception is a function of a composite somewhat directed towards a composite somewhat. But should it be posited for thinking intuition, then the *indivisible point* must be conceived as interactive, as centre of action. This indivisible *one*, this simple ultimate is in itself free from logical contradiction, because it is conceived as consisting of pure identity, of that which is like itself, and this is what it is in its simple unity. Its further quantitative and qualitative predicates are gained in the interaction *in which it defines itself*. In any case as this simple unity it is not perceivable by the sense, not susceptible of analysis, indivisible, imperishable; it is the invisible root of the phenomenal world, which it is true can be conceived only as a totality of such roots in a state of interaction.

So far as these simple beings or constituent parts of being (according to whether we have in view the particulars or the whole, synthesis or analysis) offer themselves as the limits or as the original points of all real sense-perception, of all quality and quantity, we may perhaps say that they are inconceivable, mere abstractions, nothings; i. e., they are negatives of phenomenal reality just as the point is the limit, the negative, the nothing of the line and of space. And this consciousness of the negative, this rejection of simple elements from the standpoint of a reality picturable for the senses, would be perfectly justifiable, and the existences would be resolved into nothing if we could find in them no bridge as it were, to sense-perception, that is if they were not combined in everlasting unity as a totality, through whose interaction they are able to represent the sensible world, whereby each element is a necessary collection, a centre of life, without losing its simple identity. So they appear as dynamic central spheres, as we shall see, and not as separable into material particles, not as atoms. So, conceived as central spheres of life

and motion, as centres of relatively minute spaces which they create, they are in the element of sense-perceptibility, and can develop the phenomenal world in time and space. No other hypothesis (neither that of continuous matter, nor the atomic theory,) can overcome logical contradiction. Both inevitably crumble into nothing. Only in the interaction of the monadic factors can we obtain a fixed point of rest for the flowing current of the phenomenal world. Hence thought must posit it. It must posit the absolute, infinite discreteness in the continuity of the whole, unless it allows the manifestation of the discrete in the continuous, and vice versa, in a contradictory manner.

Our standpoint is nothing more than the infinite analysis (i. e., in thought) of the world as perceived through the senses. It is the unity of the totality, the ultimate synthetic-analytic unity, in which absolute positivity includes all affirmations and negations. Only as the combination of primal elements, monads, can a so-called primal matter, primal substance occupying space, be comprehended as a thinkable reality in which all phenomena rise and set. While with the taking away of this *x*, this simple self-subsistent, the universe would vanish into mere relations without subjects, into a dreamy line-drawing in an empty space. So we must now recognize as valid the doctrine of monads, and if we find in it the grounds of all material and spiritual phenomena of experience, then we shall recognize in primal matter the universal and ultimate root of the universe. And this doctrine annuls the fancies or anthropomorphisms of the various religions, and transforms Hegel's entire speculative logic (as well as religion) into the phenomenology of the universe as reflected in the human mind, into a subjective abstraction from human experience. The self-emancipation of the so-called "Absolute Idea" into Nature is a pure chimera or farce, a juggler's trick of thinking, like the notion of a divine creation of the world out of nothing. That essential whole (of monads) present in the universe, is all in all, and *there exists nothing behind* the universe, and over and above the universe—no absolute idea, no God, no immortal human spirit. In this sense is Hegel the last of the scholastics through whose new departure science is first completely freed from the dogmas of phantasy, and the only possibility is given for a reconciliation of philosophy and natural science. This analysis is now in full progress, this consciousness is increasing more widely, and

therein is the great importance of Tyndall's address, the independent scientific value of which is a mere cipher.

2. *Absolute Combination and Interaction of Elementary Essences.*—We posit a totality of simple ultimates, of unities of being and action. We posit them simply *together*, that is reciprocally present in one infinite centre, for nothing is presupposed but them, there is therefore nothing which could separate or keep them apart but their own activity. We presuppose no space, no time, in short absolutely nothing but the monads. For all such presuppositions would be mere logical contradictions, existing nothings. There is therefore nothing between the monads, or that which is between is only their product. They are therefore necessarily combined, undivided, the *positive, infinite whole*. The basis of the universe is not the monad, but the *unity of monads*. Apart from this the monad would sink back into ineffable being, devoid of quality or quantity or power of manifestation; it would be the uncognizable "real" of Herbart. Herbart's fundamental error is that he assumes that the "reals" could in the beginning be combined or not combined, as a matter of accident. Their not being combined leads to a logical contradiction, because it must presuppose an independent, sundering nothing. All real space vanishes if the system of monads is taken away. The monad gets its real attributes (outside of its simple identity) only in combination, in relation. This is the truth in the theories of such men as Moleschott, Stallo, Lewes, and the relativists in general. The mistake is that they posit the whole relative phenomenal world without independent existent things, without real centres. The relation without the terms between which the relation exists, is a form without essence. They eliminate the *x*, and so make the universe a relativity, a phenomenon of nothing. For all continuous primal matter, primal forces which may be presupposed in addition, are of no assistance, for they themselves are resolved into relativity. The logical contradiction consists in a relation without the terms of the relation.

The thought of the monad can be repudiated only at the expense of reducing the world to a desert waste. Without the monad all existence becomes an illusion. In every element, in every point of the universe, must be posited the independently existing into-themselves-reflected monads, the ultimate, or else all relations vanish.

What is now the notion of the monad-totality? The monads

are not simply in and through each other, for then they would collapse into one centre, one existence, their being would be posited as nothing, we should have no extended world, nor the sense-perception of a world. So Leibnitz degrades the monads to a mere illusion by the contradictory fancy of an emanation ("efflu-guration") of monads from the primal monad; he makes their origin and disappearance a miracle, as he himself expressly acknowledges; in other words he also remains captive in the religious stage of phantasy. Nor are the monads simply external to each other or in juxtaposition. For then they would represent a rigid, dead mass, like Herbart's rigid line, and could not even be conceived in this totality, because the contact of simple beings (real points) would necessarily be the coalescence of the same, consequently their annihilation; pure externality would return into pure internality, or rather it would never have proceeded from it. Of course the agglomeration of monads can be only an *eternal process* of the same, in order to continually transform their *positive* unity (penetration, attraction) into *negative* unity (externality, repulsion) and *vice versa*, the negative into positive unity; in other words the monads are permanent impulses and activities against each other. This is their *perpetual contact*, which can be conceived in no other manner. They are thus because their absolute combination, their self-preservation in negation or limitation is reciprocally possible only in this way, but the annihilation of existence, being impossible, is a logical contradiction, because that which is posited would appear as not posited, or objectively expressed, the existing somewhat would appear as nothing. Only through this eternal conflict, this eternal play of monads, can the phenomenal world of time and space be founded. Hence the universe is combined from infinitely minute, simple, active elements, which as in eternal contact (combination) become impulses for each other and centres of spheres of motion, thus creating the spaces between them, the attractive and repulsive forces; and as this chain they establish the phenomenon of matter, which consequently is formed everywhere and always, and ever exhibits in specific forms the various matters or bodies. Therefore all matter as interaction of its real centres, occupies space, is impenetrable and heavy.

But does there not lie an internal contradiction in the development of simple beings that are in contact, into central spheres of action? Is there not here a centre of action in a surrounding

sphere of space, consequently a centre that acts where it really is not? Is it not therefore really resolved into an externality? To be sure we posit being or the substance of the central sphere, as point, as centre, and the spatial sphere of activity (the dynamic atmosphere, so to speak, or the combining, ideal æther, posited in the reflexion from one centre against other centres, in other words, objective space) cannot be being or substance, existing in and for itself, nor can it be merely nothing; it must therefore be a shining, a reflex of being, the positive negation of being, originating from being by contact or combination. And this is no logical contradiction, because the positive identity of being itself is not negated, is rather posited, but as mutual interdependence of beings, whereby is given with logical necessity, a reflex in every being, a shining of being, in and from itself, against other beings. The beings—if they are to exist over against each other—as they must, because they are simply accepted from negation—must preserve themselves in combination and in their reciprocal limitation; also must discriminate themselves in unity, returning from the others into themselves. And this discrimination and returning is not our thought of them, but their own process, their own life, and must be their self-activity for each other, hence their positing of an appearance, of a continuous externality between them, an oscillation and a tension between them. This is the process which we are obliged to substitute for Herbart's contradictory notion of an incomplete interpenetration of the "reals." We must convert Herbart's spheres into central spheres. At any rate it is clear that through self-activity of monads, without which the idea of the contact or the combination of real points cannot be realized, an externality (space and time) would be constructed, a juxtaposition and consecutiveness. Thus the centre creates a periphery out of itself, forced by the negation posited in it through the other, it (the centre) is an internality in an externality, an internality which posits an externality, in which it exists. All real space, time and motion, follow from this, that the active elements in their unity limit themselves for each other, really discriminate themselves. In this manner the ultimates draw elementary lines for each other, hence space-lines, a form to the essence, which form is posited out of the essence and is reabsorbed into the essence, in repulsive and attractive activity, in oscillation, in the

electric play. Matter, the phenomenon of this internal construction is therefore absolutely elastic, although in the most different forms and grades.

In this way we must consider the lines between real points (the so-called empty space, whose central points are the monads) as a posited appearance, as a direction of force, a perspective of action in the monad, whereby it positively and negatively coheres with the other monads, so that the forces, the impulses of motion change into motion itself. At a relative minimum of distance the positive becomes negative, at a relative maximum distance the negative becomes positive, and so a continual oscillation of motion is posited, whereby maxima and minima of distance are relative according to the different standpoints of single members in the *system of the whole*. The immediate and mediate chains of monads extending in all directions, the impulse to activity and the spaces and times are universally evolved and brought into relation and become specific. So phenomenal matter with all its forms and forces is the *interaction of monads*, always having a certain but mutable form. The universe is the eternal positing, analysis, and transmutation of all matters in infinite revolution, whilst the eternal self-included totality has primally the differentiations of activity within itself, which, continually comprehended in the impulse to equilibrium, let one condition proceed from another, thereby showing the *necessity* of the causal chain. This process is eternally one with the essence of the totality, because in it the primal difference and the impulse toward equilibrium are eternal.

Finally the question arises: Is not space as an *existing*, empty externality *between* the monads, in contradiction with the conception of space as an appearance—a direction and line of being? As existing it (space) must be a being, and consequently, as it seems, must coalesce with continuous matter. We should thus be led around in a circle, to the contradiction of a pure continuous matter, which would be identical with continuous space. But space as an existing being, is only an *abstraction* of the fancy. In truth it is only the relativity of existences posited and cancelled by them. It is the negation posited by beings, their distance from each other, in which coherence is preserved only through the *perspective* of beings, as the differing intensity of the impulse of the same for each other. It is therefore the objective appearance of being, a product of motion. The separa-

tion of beings is effected by their negative motion, and space is nothing but this separation, which is continuous and indivisible. It therefore varies as the motion which creates it varies, thus making a larger or smaller space. Hence objective space vanishes with the coalescence of the monads, is proved to be a posited nothing, an appearance. The *space of the universe* is the perpetual *product* of the universal chain of monads in its movements and articulation, and in this space exist and move all members which at the same time originate it. If all the members were to combine perfectly into one, which is impossible, then space would disappear as an illusory appearance; nothing would remain but the subjective conception (assuming it were possible) of an infinite void, an infinite nothing, in truth only the idea of a universal possibility of a here and there. This empty space would not be perceived through the senses, because it could exercise no effect upon the ego, on account of its emptiness. The apparent perception of space through the senses would be only a fancy in the life of the brain, an internal subjective movement (assuming a brain were possible without the presupposition of a universe).

A logical contradiction consists in abolishing a determination at the same time within which it is posited, in predicating of a thing that which is irreconcilable with its idea, e. g., a quadrilateral circle or wooden iron. If we now posit beings or egos in contact or in relation to each other, then determinations will be developed from them which could not be those of isolated beings. Logical contradiction cannot forbid our positing interdependent beings; for one is not posited *as* the other but *with* the other, they are self-identical in the negation which strikes them, and must be posited as this self-identity mediated by negation in order to avoid contradiction. So each must be posited as self-preservation, but self-preservation is something other than mere self-existence, it is mediated by the attempted negation, it is negation of negation. The universe is therefore the eternal negation of negation, appertaining to all egos in their relation to each other, so all are self-limitations, are beings which posit the limits in themselves, in other words self-preservation. The impulse, motion, space and time are only these negations of negation, these activities and manifestations of the egos for each other. The eternal egos could not exist reciprocally combined if they did not eternally originate the objective appearance of the universe. The universe can be only the eternal process of self-preservation of

the monads in reciprocal conflict and reflex. It is an objective appearance, as is evident from the fact that all its forms are transitory, although necessarily transmutable into others. Only the monads, their combination and their primal impulses in combination are eternal; the form of the combination changes while the relativity of the monads varies. In this sense the immortal always-identical somewhat, is *matter with its primal instincts* without which it cannot exist a moment. The final question is, "How then is developed perpetually the manifoldness of forms (of matter with its forces) in the primal essence, the monad totality"?

3. *The Universe as the Necessary Consequence of the Totality of Monads, or of Primal Matter.*—Of course we shall not here attempt to give a theory of the construction of the universe, which in any case would probably be premature. But we will show in brief that a world of motion, articulation (organization) and metamorphoses necessarily follows from the principle, that in particular the forms and laws of nature follow from it, and the forms of intelligence in animals and man result from it.

(a) We see that sensible matter has for its presupposition the interaction and motion of the elementary unities. We call the monads central spheres in so far as they appear as *central points of spatial spheres*, by means of which they cohere and oscillate reciprocally. These lines in the immediate interdependence of the centres of activity, we may call the smallest elements or real differentials of spatial, sensible reality, which elements are in every respect *relative*, discriminated according to the differentiation of matter in the whole. At the same time that all elements are united, in part immediately, in part mediately, by intervening members, and hence form a chain, the so-called *actio in distans*, and entire spheres of space are developed in which we find the universal *polarity* of the series [of monads] in attractions and repulsions, contractions and expansions, elasticity, motion of molecules and of masses, vibrations and wave lines; in light, heat, electricity, magnetism, crystallization, chemic force and organic force. If we now posit *the whole*—which as existing reality can not be *sought* in the *infinite* but *must* be a totality complete and entire in itself—as the positive maximum (as *vice versa* divisibility in the monad terminates as the infinitesimal)—if then we presuppose the positive totality as an *original irregular whole* (not as the *one* possible case among an infinite number of abso-

lutely perfect spheres) which presupposition being *absolute* admits no cause, but is only made in order to explain the real universe; then we immediately have in this whole, with the universal internal *molecular motion* (so to describe in brief the motion of the smallest parts of the monads and their smallest constellations of atoms and molecules) an original *motion of the mass*, by virtue of the universal gravitation or attraction within the series, which in the unspherical whole seeks to create the absolute sphere, and so establishes in the eternally existing being an eternal goal for its strivings, a universal motion toward the creation of universal equilibrium.

The particular motions in general must unite in a common rotation, and create the universe as a rotating spheroid, in which spheres separate themselves from spheres (rings) and finally become separate bodies, and the system of the starry universe is formed. At the same time the molecular determinations must arise, and there must be special forms of combination, i. e., molecules, (whose most primitive members are the so-called atoms) thus forming the so-called *elementary matter* or material elements, which then by new and closer unions originate concrete matters and bodies, all in mathematical necessity conformable to law. And as the primal atoms (monads) are all of equal value for the phenomenal world, since no difference of essence can be conceived in the *simple*, then the identically combined primal forms (elementary atoms) must be identical, must be capable of reciprocal substitution; the differently combined on the contrary must be different in quality and quantity and in their neutral combination; their respective unions and separations must exhibit the chemical processes, the synthetic and analytic processes. So primal matter, (the totality of monads) is comprehended in an eternal process of progressive and regressive specification. And this process of molecular and mass motion, of articulation, dissolution and re-articulation, can *never* cease, because the difference is originally in the absolute and hence must appear to all infinity. The universe is the never-dying *life*, an eternal circular motion. It needs neither the chimera of Spencer's infinite nor Winchell's God in order to be resurrected from its death.

(b) The forms of primal matter as articulated we call *the whole of nature*, which is therefore all in all. For what in contrast to it we call mind, sensation, consciousness, thought, will, is as reality only an *internal appearance* in a form of nature, in the ani-

mal organism, and at its highest potency in man. But since feelings, thought and will inhere in the same matter (although located in special organs) which (matter) also forms the crystal and the plant by other forms of combination, then the principle or the potency of spirit must lie in all nature, therefore in the monad itself, and every other conception of the monad and of matter is simply unthinkable, would take from the monad its ego, its internality, and thereby annihilate it. The essence of mind is self-manifestation of being, it is the objectivity become internality or self-determining. Now this internality is inseparable from the monad in its interaction; it is its ego, its self-preservation in limitation. Without this it would have to vanish as one empty point of space vanishes in another. Consequently, with Leibnitz, Herbart, Schopenhauer and Hartmann, we must posit in the whole of nature, (hence simply and altogether in matter) *idea and will* as the quintessence of every force and motion; so that this ego is as manifold as the monad, and in such combinations appears like the monad and so is more or less a universal, combined ego in the special members of the universe, and a most universal and most abstract world-ego. But the ego is raised to consciousness only in the animal organism. Cognition and will in the strictest sense, inhere only in a certain highest concrete and organized reflex form of matter, and act first of all even here as unconscious formative instinct to the further organization of matter, always emerging from unconsciousness to consciousness and *vice versa* returning from consciousness to unconscious force of nature, in a continual metamorphosis of forces. Leibnitz thus rightly says, "The monads are in the so-called lifeless nature in the state of sleep, in the animal in the state of dreaming, in man in the state of awakening." The forces of nature are therefore nothing but the exhibitions of the necessity of the sleeping ego, of every monad in the conflict of monads, the continual evolution of the centre in the periphery, in motion. The spiritual forces in the narrower sense, are the taking back of motions into centrality, that is the self-perception of the same, or the continual metamorphosis of motion into sensation and will-instinct, which then resolve themselves into motions again. In this idea alone are solved the contradictions of Tyndall, Huxley, and Spencer; in it is reached the true notion of matter which Tyndall seeks. Nature is everywhere merely sleeping spirit, no more and no less. And in the animal and in man it awakes, *matter*

itself awakes, and herein is solved once and forever the dualism of matter and mind, object and subject, thing in itself and cognition, non-ego and ego—absolute cognition is established, natural science and philosophy reconciled.

(c) And because *nature in itself is mind*, then the mind in nature can awake by a higher reflexion of natural force. It is awakened in the animal organism whose highest form is man, created by development, by an ever fuller reflexion of the animal, by its own perfect self-production in the course of millions of years. The highest result of this process is the *human brain*, to which finally the simple nerve-ganglion has developed, and so is enthroned above all lower forms. Were nature only a system of dead atoms then mind would never awake. Such chimeras as are set up by Challis and others, believers in soulless mechanics, with their impossible, self-contradictory fundamental notions of the material universe, demand for compensation separate souls and gods. The true, universal essence of the universe, is individualized, living, primal matter, everywhere in which life and mind in a special sense can appear. The life of the mind as brain-life demands on the one side the foundation of the same in the *construction of the brain and nervous system*, on the other side the comprehension of the same as a development in its own element, the development of consciousness, thought and will, which are as incomprehensible from the exterior mechanical brain form as the articulation of organism is from unorganized chemic force. Organism is the continual reaction upon chemical forces, and consciousness is the continual reaction upon the brain or upon organism. Higher concrete reflex points are formed from lower ones, upon which they react. Such a reflex point is life, appearing out of the unorganized synthesis, such a higher reflex point is sensation, appearing in life. And every such point surrounds itself with its own organization, forming its own pre-supposed basis from itself, reaching out in order to transform the lower into its form of growth so far as the nature of the lower will allow. Nature is a system of reflex-stages, on the summit of which stands man and spirit, all based in the living chain of monads.

CONCLUSION.

Matter, then, is the *chain and interaction of living unities*. Therefore matter is extended, divisible, moving and equilibrating, resistent and elastic, articulated and organized, perceptive and

impulsive, and the promise and potency and actuality of life and mind.

Tyndall, a very thoughtful experimentalist and a man of the noblest character, has the true image of Matter and Nature. To him Nature is a living organized whole, an interaction, oscillation, equilibration of moving atoms, and a power or potency of sensibility and will. In his preface to the last edition of the "Fragments of Science," ("Popular Science Monthly," Dec., 1875, p. 129-148) he has gone farthest in his ideal intuition of matter as *universal vitality and sensibility*, which he does not deny even to the elemental and mineral world. That is the most which we can ask from the standpoint of mere *empirical induction*. That standpoint lacks only the cognition that no matter at all, not even the smallest atom can really be thought as *existing* without *continuous* subjectivity or reflection into itself, that is without *vital points*; that no predicates, relations, forces, and therefore no movement and mechanism are at all *possible* without *subjects*, that is, simple beings reflected into themselves as well as into others. All attraction, repulsion, impenetrability, movement, translation of movement, resistance to movement, consequently all mechanism *presupposes monads* becoming vital by their positive-negative reaction to other limiting monads. The speculative thinking alone, and not the mere empirical inductive imagination can understand and illuminate the ultimate processes of things; it *posits* the *absolute presupposition* of the phenomenal world. For the speculative thinking, the universe is the totality of living differentials and integrals of being, manifesting themselves in chains of space and time or movement. Matter as the mere *passive*, extended, impenetrable and moveable substance, is the most irrational of all ideas.
